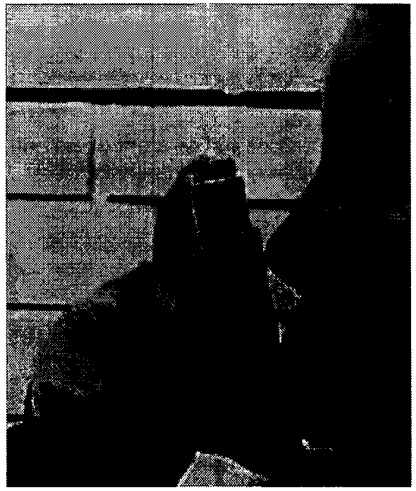


FIG. 1

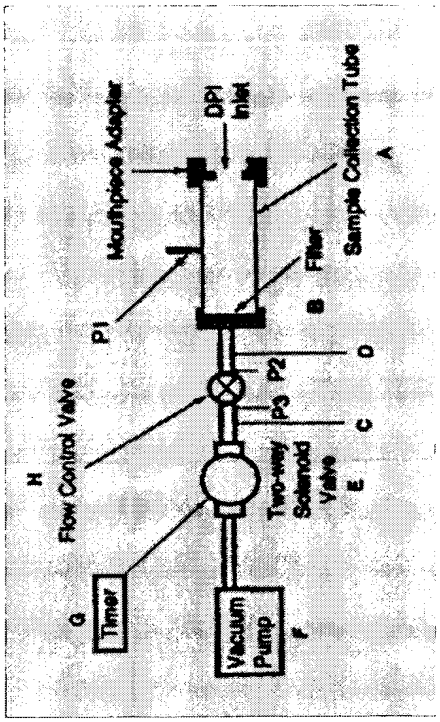

Mouthpiece Adapter
DPI Inlet
Sample Collection Tube
A
P1
Filter
B
P2
D
P3
C
Two-way Solenoid Valve
E
Flow Control Valve
H
Timer
G
Vacuum Pump
F

FIG. 2

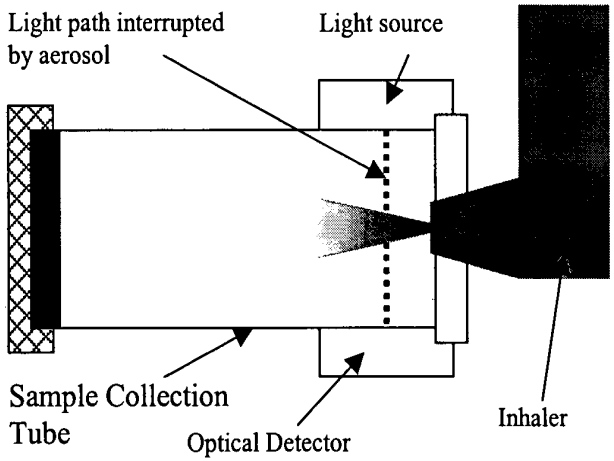

Light path interrupted
by aerosol
Light source
Sample Collection
Tube
Optical Detector
Inhaler

FIG. 3

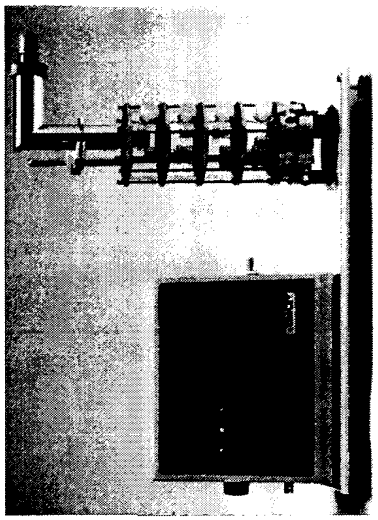


FIG. 4

PHOTOELECTRIC LIGHT SENSING TECHNOLOGY

(EXEMPLARY SMOKE EMISSION DETECTOR)

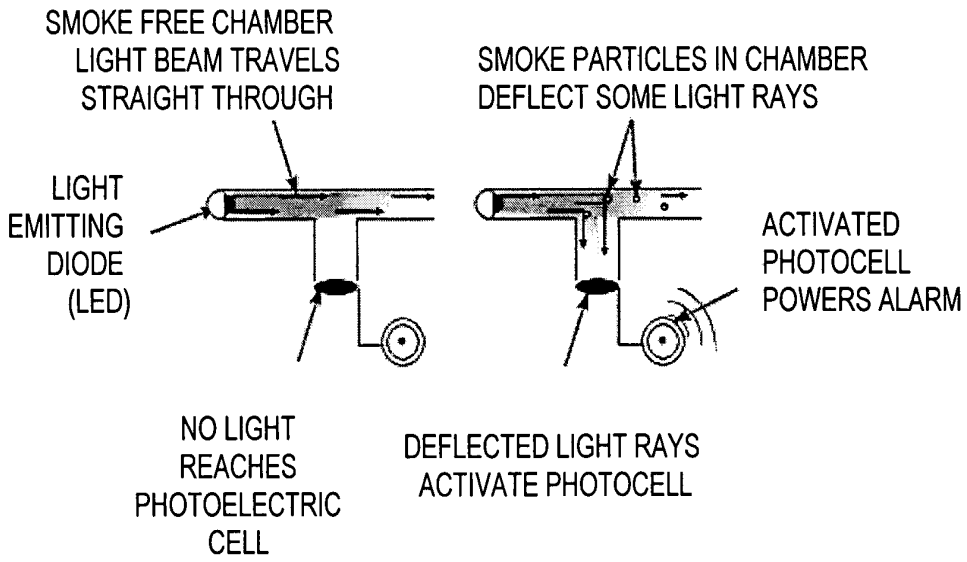


FIG. 5

INFRARED MEASUREMENT SYSTEMS

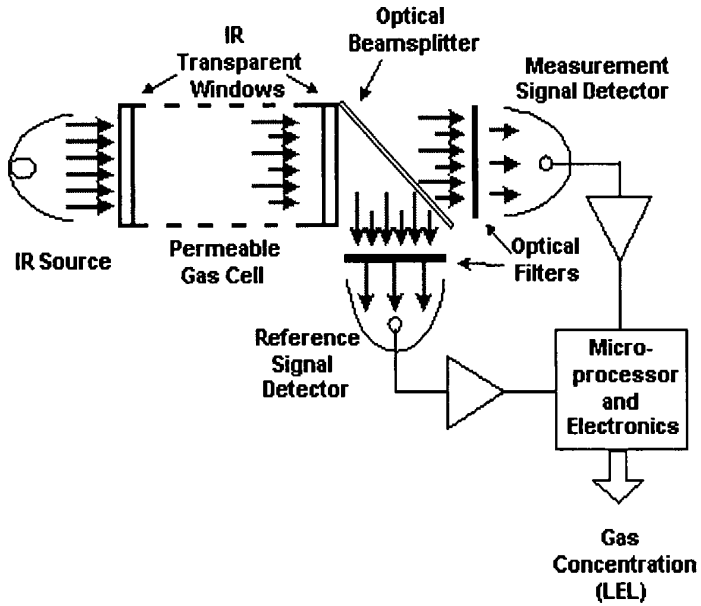
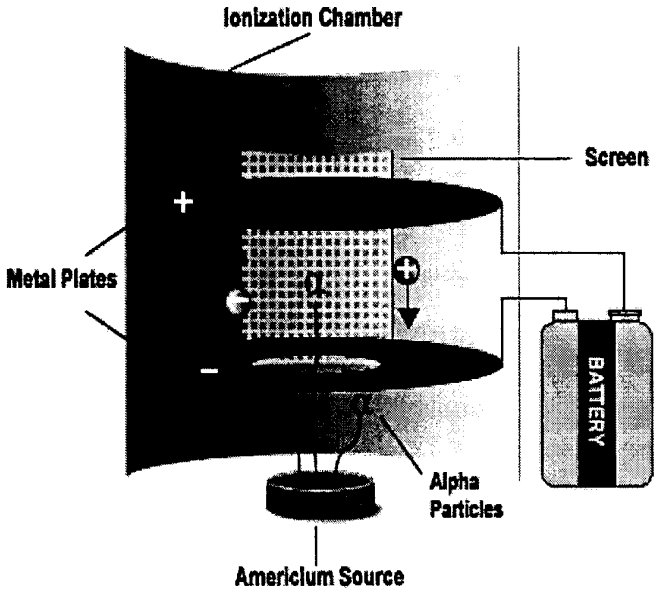


FIG. 6

IONIZATION TECHNOLOGY

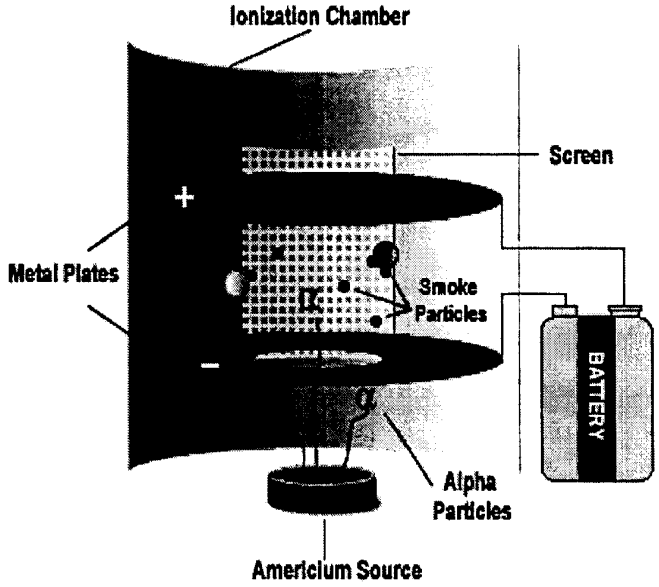
ALPHA PARTICLES FROM AN AMERICIUM SOURCE IONIZE AIR MOLECULES



IN THE SMOKE-FREE CHAMBER, POSITIVE AND NEGATIVE IONS CREATE A SMALL CURRENT AS THEY MIGRATE TO CHARGED PLATES

FIG. 7A

SMOKE PARTICLES ENTERING THE CHAMBER THROUGH THE SCREEN, ATTACH TO THE IONS AND RETURN THEM TO THEIR NEUTRAL STATE



AS FEWER IONS ARE AVAILABLE TO MIGRATE TO THE PLATES, THE DISRUPTED CURRENT TRIGGERS THE ALARM

FIG. 7B